

REMARKS

In the Office Action the Examiner noted that claims 1, 2, 5-10, 13-18 and 21-25 were pending in the application and the Examiner rejected all claims. By this Amendment, various claims have been amended. Thus, claims 1, 2, 5-10, 13-18 and 21-25 remain pending in the application. The Examiner's rejections are traversed below.

REJECTION UNDER 35 USC § 112

In item 5 on page 3 of the Office Action, the Examiner rejected claims 1, 2 and 5-8 under 35 USC § 112 as indefinite. Claim 1 has been amended in accordance with the comments raised by the Examiner. It is submitted that claims 1, 2 and 5-8 meet the requirements of USC § 112.

REJECTION UNDER 35 USC § 103

In item 6 on pages 4-7 of the Office Action, the Examiner maintained the rejection of all claims 1-24 as unpatentable over the combination of U.S. Patent 6,292,577 to Takahashi and U.S. Patent 5,836,872 to Kenet et al.

TAKAHASHI

U.S. Patent 6,292,577 to Takahashi is directed to a resemblance retrieval apparatus and recording medium for recording a resemblance retrieval program. A feature quantity extracting unit 2 extracts a feature quantity, quantitatively expressing a feature of the designated subject image, from the subject image. Takahashi also describes a resemblance retrieval operation as described starting at column 8, line 50.

KENET ET AL.

U.S. Patent 5,836,872 to Kenet et al. is directed to a method for monitoring a region of a body surface which includes recording a digital image of the surface at first and second times and comparing the first and second images. Kenet describes containing the borders of lesions by segmentation and computing quantitative features of the images including the number of lesions and the location of lesions.

The Response to the Prior Office Action

In the Amendment filed in response to the prior Office Action the applicant made the following patentability arguments.

1. While the Takahashi reference describes consideration of “weighting”, Takahashi does not teach or suggest the claimed features wherein similarities are calculated by taking into account a weighting set for each organ. In fact, the Examiner acknowledged that Takahashi does not teach this feature on pages 4 and 5 of the prior Office Action.

2. The Examiner had taken the position that it would have been obvious to modify the weighting set of Takahashi, so that it is a weighting set for each organ, in order to enhance the system by utilizing a weighting set that is optimized for each organ. The applicant urged that the general statement in Takahashi at column 9, line 66 to column 10, line 1 does not teach or suggest the claimed feature of calculating similarities by taking into account a weighting set for each organ.

The Examiner's Response In the Current Office Action

The Examiner's response to the above arguments is set forth in item 4 on pages 2 and 3 of the current Office Action. In response to the above arguments, the Examiner takes the position that column 4, lines 2-19 of Takahashi teach “the importance degree of the feature quantity elements are different for different types of anatomical features” (see page 2 of Office Action).

At the bottom of page 2 of the current Office Action the Examiner again acknowledges that Takahashi does not explicitly disclose a weighting set for each organ but takes the position that “it would have been obvious to a person of ordinary skill in the art to modify the weighting set of Takahashi so that it comprises a weighting set for each organ. The suggestion/motivation

for doing so would have been to enhance the similarity calculation results by optimizing the weighting set. Therefore, it would have been obvious to calculate the similarities, taking into account a weighting set for each organ."

THE PRESENT CLAIMED INVENTION PATENTABLY DISTINGUISHES OVER THE PRIOR ART

Independent claims 1, 9 and 17 have been amended to specify that "the diagnosis target image and the reference images comprise at least one of CT images and MRI images" and "the weighting set is set so as to correspond to the feature quantities of each of a plurality of organs and the corresponding reference images."

Referring to Figures 4 and 5 of Takahashi, it is clear that these figures disclose tables in which the setting of weighting is constituted by a specific matrix including items such as the title of diagnosis, the characteristic of an individual patient, and the feature quantities of images. However, the portion of column 4 of Takahashi relied on by the Examiner relates to optimum weight vectors for tumor 1 versus tumor 2, and there is no discussion of "anatomical features" as suggested by the Examiner. Thus, in Takahashi, no consideration is given to the characteristics of an organ. Therefore, there is nothing in the prior art that would have suggested the correlation between organs and feature quantities of images which could be variously set in a weighting table.

In addition, the present invention is based on the assumption that a set of plural images including the plurality of either CT images or MRI images is used for both the diagnosis target images and the reference images. Thus, a legion position could be diagnosed by detecting a legion position from the plural diagnosis target images and additionally by retrieving the resemblance images from the plural reference images.

On the other hand, Takahashi does not relate to plural images, but instead is directed to a pathological tissue image or a plane radiography image as a target image. As a result, a position of a legion might be overlooked in diagnosis.

In summary, it is submitted that the above-identified features of the present invention would not have been obvious to one of ordinary skill in the art based on the teachings of the prior art identified by the Examiner. Therefore, it is submitted that claims 1, 9 and 17 patentably distinguish over the prior art.

Claims 2, 5-8, 10, 13-16, 18-24, depend, directly or indirectly from one of claims 1, 9 and

17 and include all of the features of the claim from which they depend, plus additional features which are not taught or suggested by the prior art. Therefore, it is submitted that these claims also patentably distinguish over the prior art.

Claim 25, as amended, recites:

calculating image-wise similarities between each of the reference images and the target image by matching the feature quantities of each of the reference images with the feature quantities of the target image, wherein the reference images are retrieved in order of similarity as calculated by said calculating image-wise similarities, and wherein said calculating comprises calculating similarities, taking into account a weighting set for each organ,

wherein the target image and the reference images comprise at least one of CT images and MRI images, and

wherein the weighting set is set so as to correspond to the feature quantities of each of a plurality of organs and the corresponding reference images.

Therefore, it is submitted that claim 25 patentably distinguishes over the prior art.

Entry of this Amendment

It is submitted that the above-identified claim amendments have been made primarily for the purpose of clarifying the features of the present invention as expressed in the prior Amendment. Therefore, it is respectfully requested that these amendments be entered into the application.

SUMMARY

It is submitted that none of the references, either taken alone or in combination, teach the present claimed invention. Thus, claims 1, 2, 5-10, 13-18 and 21-25 are deemed to be in a condition suitable for allowance. Reconsideration of the claims and an early Notice of Allowance are earnestly solicited.

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Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935

Respectfully submitted,

STAAS & HALSEY LLP

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11-8-04

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